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UTAH'S WATER QUALITY

Water Quality Inventory **Fall 2004**

Utah monitors and assesses its surface waters, rivers and streams, and lakes and reservoirs on a regular basis to determine whether they are supporting their beneficial uses. Among other things, these assessments identify impacts from pollution sources so efforts can be taken to protect and improve water quality. A report to Congress on the quality of Utah's waters is also required to be provided to Congress every two years. This fact sheet contains a summary of information in the 2004 Water Quality Assessment Report to Congress.

Year 2004 305(b) Assessment

Water quality standards are established to protect the beneficial uses of the streams, rivers, lakes and reservoirs within the state. Beneficial uses include source of drinking water (Class 1C), and recreation (Classes 2A and 2B). Fishing and other aquatic life classifications include cold water game fish (3A), warm water game fish (3B), non-game fish (3C) and other aquatic life such as waterfowl and shore birds (3D). Waters used for irrigation and stock watering are classified as Class 4. Streams and lakes of the state are classified as one of the above or a combination of them. The quality of water is assessed as "fully supporting" (good to excellent water quality), "partially supporting" (meets the standards most of the time), and "not supporting" (frequently the water quality standards are not met). In addition, individual Assessment Units (AUs) were evaluated and placed in the new beneficial use assessment categories developed by EPA.

In assessing the quality of state waters, scientists look at general water chemistry and for the presence of nutrients and toxicants. Data are compared against state standards and pollution indicators. Stream structure and stream bank habitat may also be used to assess beneficial use support. Since a waterbody may have multiple uses, data collected must meet the criteria for each beneficial use for an assessment unit to be listed as fully supporting. For the most part, the Class 2A and 2B categories (recreation) were not assessed due to the difficulty in meeting quality control requirements for bacteriological samples.

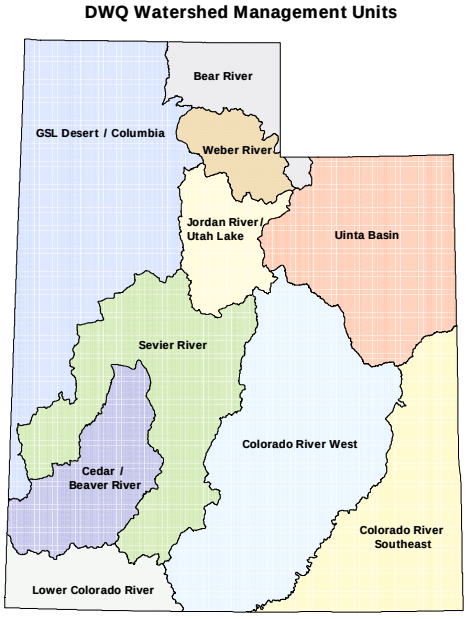

Figure 1. Watershed Management Units.

For the 2004 305(b) report, the statewide assessment consisted of the summary evaluations of six intensive monitoring surveys. The six watershed management units that had new surveys were the Uinta, Sevier River, Colorado River West, Colorado River Southeast, Lower Colorado River and the Cedar / Beaver. These were combined with previous surveys done in the Bear River, Weber River, and the Jordan River/Utah Lake (Figure 1). Some new assessments were made on some stream segments within these latter watershed units and the results their previous assessments were updated to complete the statewide assessment.

Major sources of data used were from the Division of Water Quality and agencies that have cooperative monitoring programs with the Division. These include several U.S. Forest Service national forests and BLM regional offices. Salt Lake City, Central Utah Conservancy District, and the Jordanelle Technical Advisory Committee also had cooperative programs with the Division. Data collected by the United States Geological Survey for the Great Salt Lake Basins NAWQA program were also used in the evaluation.

Rivers and Streams

Utah assessed approximately 10,606 miles of perennial streams. This is 74.4% of the 14,250 perennial stream miles in the state. Of the miles assessed for at least one beneficial use, 74.0% were assessed as fully supporting, 13.5% as partially supporting, and 12.5% as not supporting at least one beneficial use designation (Figure 2).

The majority of streams were not assessed for Class 2B (contact recreation). Therefore, the assessment is primarily based on Class 1C (source of drinking water), aquatic life beneficial uses (3A, 3B, 3C, and 3D), and Class 4 (agriculture use). Table 1 lists individual beneficial use class support.

The major causes of water quality impairment are total dissolved solids, nutrients, sediments, and stream habitat alterations (Figure 3). Stream habitat alterations include riparian habitat and in-stream habitat. Because riparian habitat and in-stream habitat are defined as '**pollution**' and not a pollutant, no TMDL is required for this causes of stream impairment. However, implementation of best management practices (BMPs) need to be implemented to restore the stream habitat. The major sources of pollutants are agriculture, natural sources, hydrological modification, and habitat modification (Figure 4).

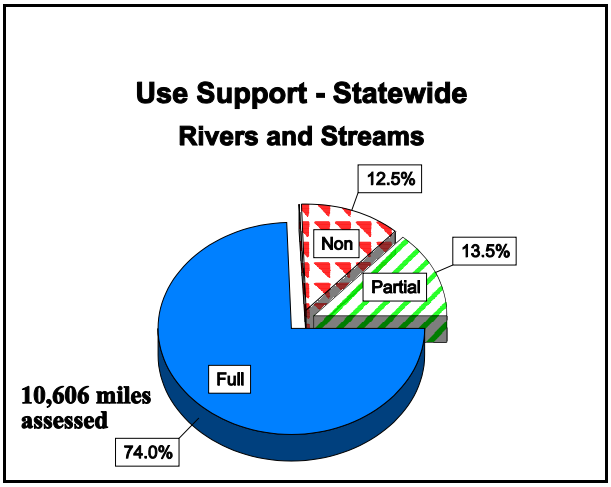

Figure 2. Statewide use support for rivers and streams based upon at least one beneficial use being assessed.

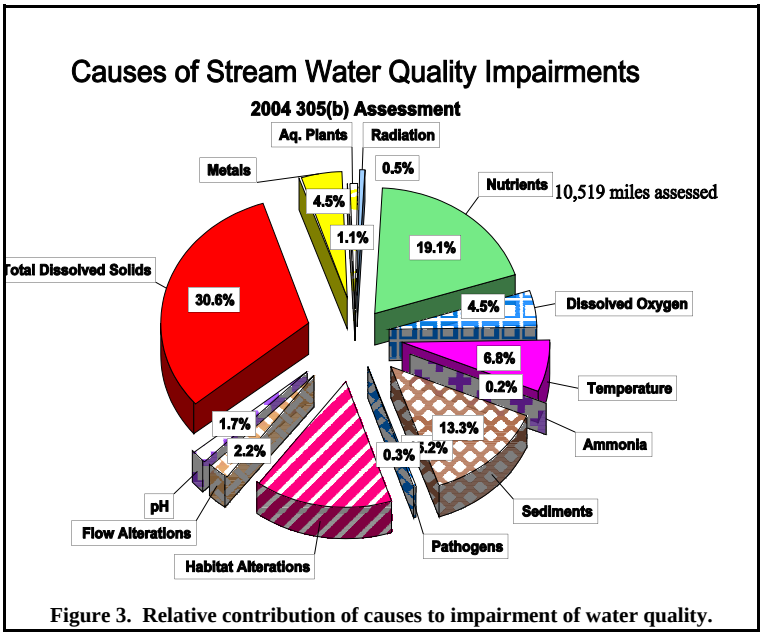

Figure 3. Relative contribution of causes to impairment of water quality.

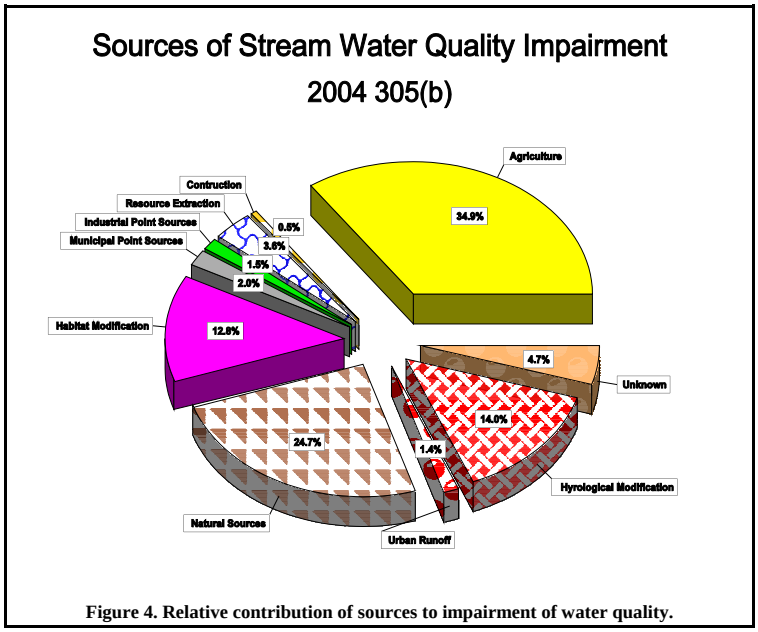

Figure 4. Relative contribution of sources to impairment of water quality.

Utah's proposed 303(d) list of impaired waters includes 57 stream segments. Because multiple factors affect some of these segments, 75 parameters were listed for Total Maximum Daily Load (TMDL) analysis.

Lakes / Reservoirs

The 132 key lakes assessed during this reporting cycle account for 97% (467,787 acres) of the total lake acreage in the state. Based upon acreage, 67.7% of the acreage was found supporting its designated uses, 31.8% partially supporting and 0.5% was not supporting designated uses (Figure 5). This was based upon at least one beneficial use being assessed.

Of the 132 lakes surveyed, 74 (56%) were fully supporting, 49 (37%) partially supporting, and 9 (7%) not supporting at least one beneficial use designation.

Table 1. Individual Beneficial Use Support Summary For Stream - Stream Miles							
Goals[a]	**Use**	**Size Assessed**	**Size Fully Supporting**	**Size Fully Supporting but Threatened**	**Size Partially Supporting**	**Size Not Supporting**	**Size Not Attainable**
Protect & Enhance Ecosystems	Aquatic Life	10,579.9	9,016.2 (85.2%)	0.0	1,205.9 (11.4%)	357.9 (3.4%)	0.0
Protect & Enhance Public Health	Fish Consumption	46.8	0.0	0.0	0.0	46.8 (100%)	0.0
	Swimming	675.1	634.5 (94.0%)	0.0	30.8 (4.6%)	9.8 (1.4%)	0.0
	Secondary Contact	675.1	634.5 (94.0%)	0.0	30.8 (4.6%)	9.8 (1.4%)	0.0
	Drinking Water	4,054.6	3,999.9 (98.7%)	0.0	12.4 (.3 %)	43.2 (1.0%)	0.0
Social and Economic	Agricultural	10,203.9	8,785.0 (86.1%)	0.0	376.7 (3.7%)	1,042.2 (10.2%)	0.0
	Overall Use Support	10,606.0	7,850.5 (74.0%)	0.0	1,425.9 (13.5%)	1,329.1 (12.5%)	0.0

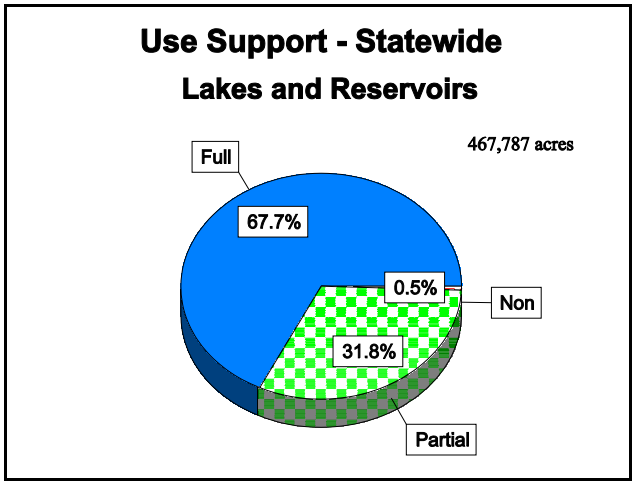

Figure 5. Statewide assessment of lakes and reservoirs based upon at least one beneficial use being assessed.

The causes of impairment of lakes and reservoirs continue to be nutrients, siltation, low dissolved oxygen, and noxious aquatic plants. This leads to problems in late summer, especially in reservoirs when the water is drawn down reducing the amount of water that is available as suitable habitat for fish. Higher temperatures and less water also create better conditions for algal blooms (aquatic plants) that can reduce oxygen levels, cause taste and odor problems, and create that green "scum" one sees on the surface of some lakes and reservoirs.

The major sources of pollutants causing impairments are nonpoint sources, agricultural practices, industrial and municipal point sources, and habitat modification (draw-down of reservoirs).

Thirty-seven (37) lakes remain on the 303(d) list, including a total of 52 parameters that need TMDL analysis. Cutler Reservoir and Pelican Lake were added to the list for the first time. TMDLs were completed for seven lakes and a request will be made to remove these in the next reporting cycle. The State will request that these be removed in the next reporting cycle. Nine additional lakes fell into the partially supporting category and one into the non-supporting category. Some of these 10 lakes have fluctuated in and out of full support status for several reporting cycles, while others came under additional stress due to the continuing drought conditions. Figure 7 shows the lake beneficial use assessment by category.

Assessment by Categories

Table 2 is a list of the new assessment categories developed by EPA for use in this and future 305(b) reports. This method of reporting provides a broader picture of the water quality assessment in the state. The river and stream miles for each category are listed in Table 3 and the lake and reservoir acreage in each category are listed in Table 4. Figure 6 is a map of the beneficial use assessment by the new categories for streams. For more detailed maps and information statewide, the reader is referred to the 2004 305(b) report in its entirety. Figure 7 is a map of the beneficial use assessment by categories for those lakes and reservoirs that were assessed..

Table 2. Beneficial Use Assessment by Categories for Rivers, Lakes and UPDES Discharge Permit Renewals

Category	Definition
1	All designated uses assigned to an assessment unit were assessed and are fully supported.
2	Some of the designated uses are fully supported, but there is insufficient data to determine beneficial use support for the remaining designated uses.
3	Insufficient or no data and information to determine if any designated use is attained
4A	TMDL has been completed for all pollutants
4B	Other pollution control requirements are reasonably expected to result in attainment of the water quality standard in the near future
4C	The impairment is not caused by a pollutant, e.g. habitat alteration
5A	Assessment unit is impaired by a pollutant and a TMDL is needed.
5B	AUs are listed in this category to identify those pollutants for which a TMDL has been approved, but TMDLs are still required for other pollutants identified, water quality standards are now being met, new delineation of assessment unit, changes in beneficial use classification result in meeting standards, change in listing methods results in meeting standards or change in water quality standards and standards now being met.
5C	UPDES permit renewals scheduled for completion from April 1, 2004 to March 31, 2006, waters not impaired.
5D	The assessment has identified impairment during one of the even or odd year monitoring cycles. If the AU is assessed as impaired during the next assessment period, it will be listed in Category 5A, TMDL required.

Table 3. River and Stream Miles by Assessment Category

Category	Definition	Steam Miles
1	All designated uses assigned to an assessment unit were assessed and are fully supported.	415
2	Some of the designated uses are fully supported, but there is insufficient data to determine beneficial use support for the remaining designated uses.	7,435
3	Insufficient or no data and information to determine if any designated use is attained	3,644
4A	TMDL has been completed for all pollutants	910
4B	Other pollution control requirements are reasonably expected to result in attainment of the water quality standard in the near future	0
4C	The impairment is not caused by a pollutant, e.g. habitat alteration	658
5A	Assessment unit is impaired by a pollutant and a TMDL is needed.	1,726
5B	AUs are listed in this category to identify those pollutants for which a TMDL has been approved, but TMDLs are still required for other pollutants identified, water quality standards are now being met, new delineation of assessment unit, changes in beneficial use classification result in meeting standards, change in listing methods results in meeting standards or change in water quality standards and standards now being met.	146

Table 4. Lake and Reservoir Beneficial Use Assessment by Category - Lake Acreage.		
Category	**Definition**	**Lake Acreage**
1	All designated uses assigned to an assessment unit were assessed and are fully supported.	162,700
2	Some of the designated uses are fully supported, but there is insufficient data to determine beneficial use support for the remaining designated uses.	156,919
3	Insufficient or no data and information to determine if any designated use is attained	13,851
4A	TMDL has been completed for all pollutants	8,235
4B	Other pollution control requirements are reasonably expected to result in attainment of the water quality standard in the near future	0
4C	The impairment is not caused by a pollutant, e.g. habitat alteration	0
5A	Assessment unit is impaired by a pollutant and a TMDL is needed.	135,710
5B	AUs are listed in this category to identify those pollutants for which a TMDL has been approved, but TMDLs are still required for other pollutants identified, water quality standards are now being met, new delineation of assessment unit, changes in beneficial use classification result in meeting standards, change in listing methods results in meeting standards or change in water quality standards and standards now being met.	3,478
5D	The assessment has identified impairment during one of the even or odd year monitoring cycles. If the AU is assessed as impaired during the next assessment period, it will be listed in Category 5A, TMDL required.	1,204

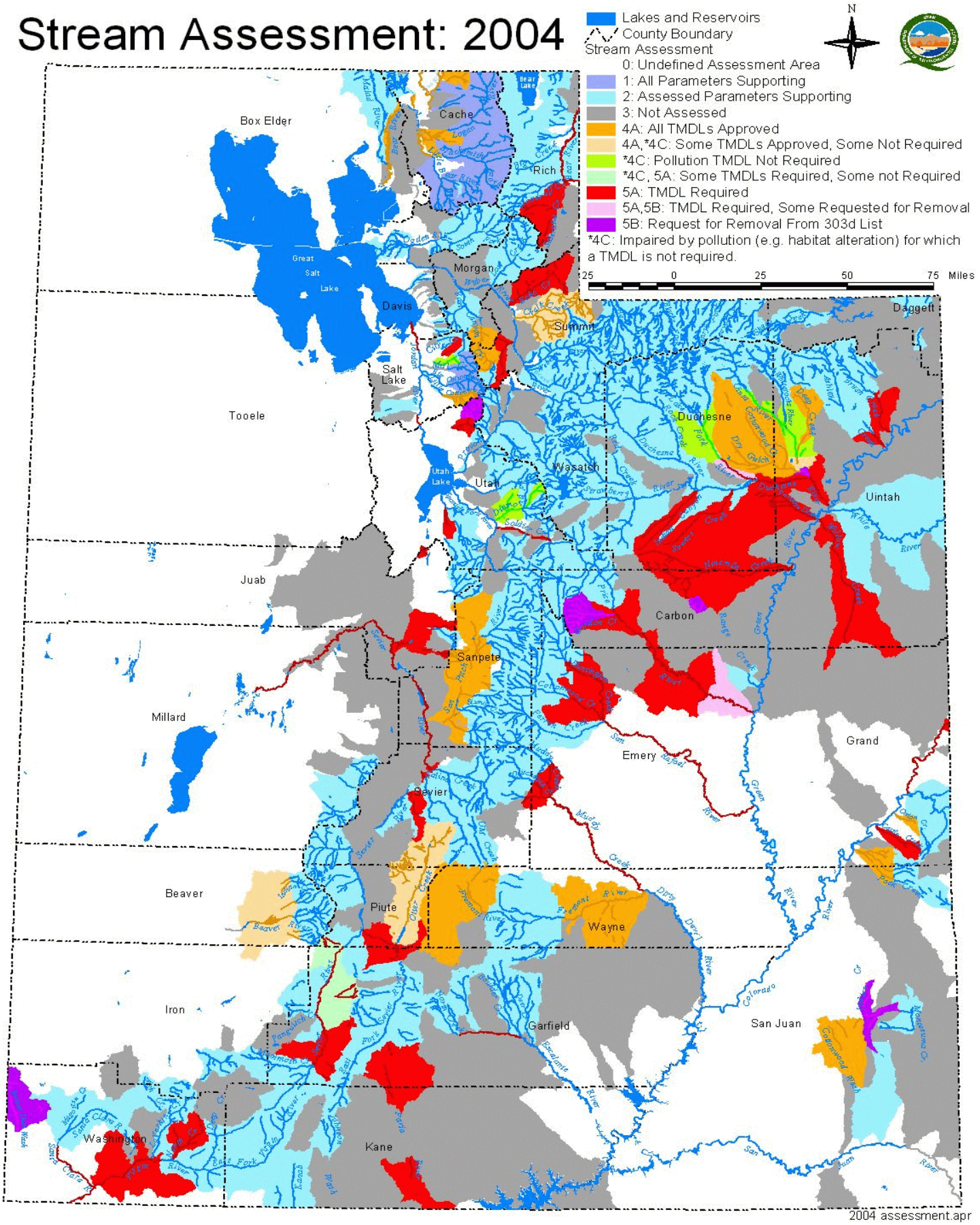

Figure 6. River and stream beneficial use support by category.

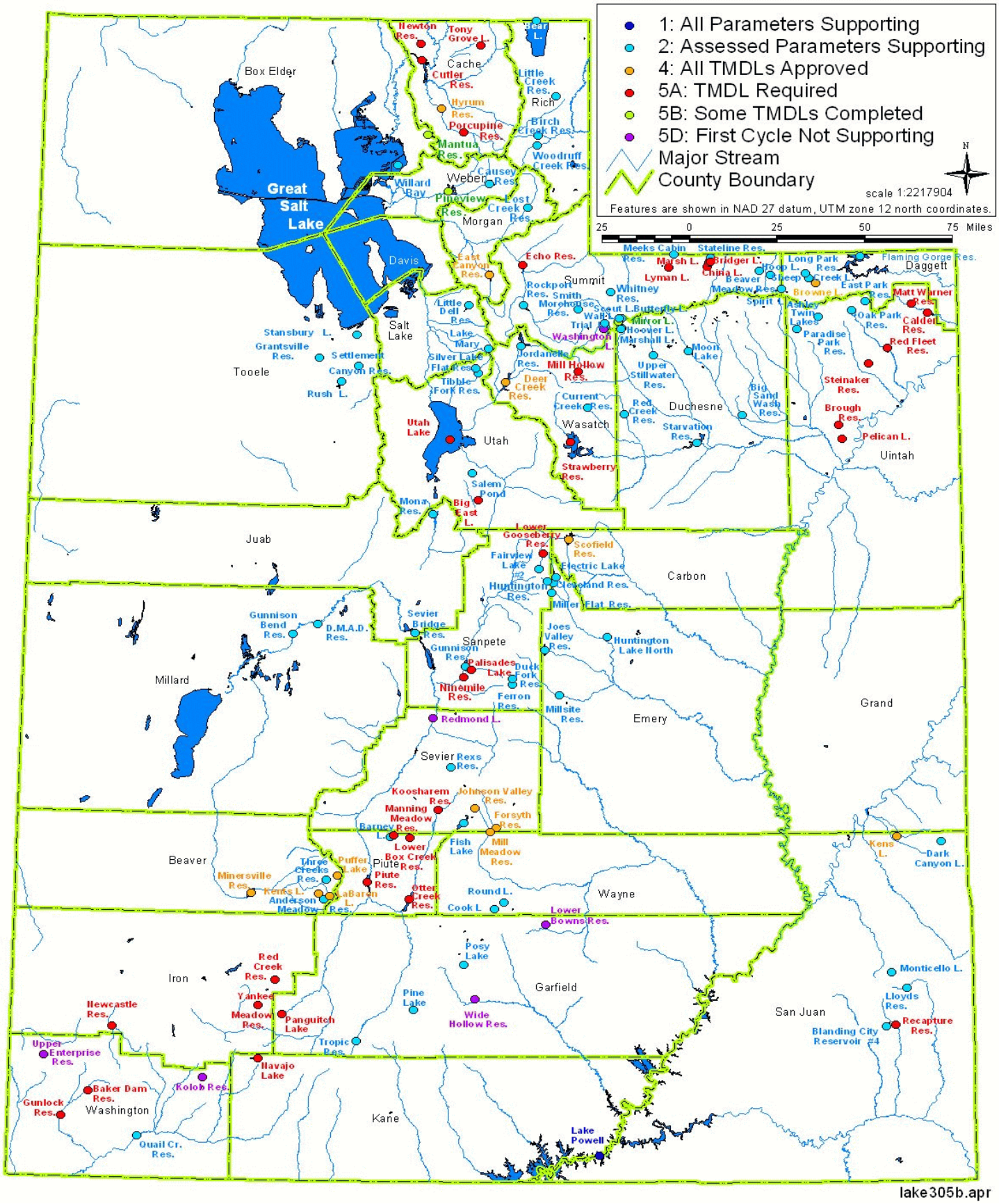

Figure 7. Lake and reservoir beneficial use by category.

Reports and information regarding the Division of Water Quality's water quality programs can be found at its web site (http://www.waterquality.utah.gov/.), For information regarding specific programs and watersheds within the State, you can contact the individuals listed below.

Water Quality Section			TMDL Section		
Name	**Program**	**Telephone Number**	**Name**	**Program**	**Telephone Number**
Mike Reichert	Manager	538-6954	Harry Judd	Manager	538-6057
William Moellmer	Water Quality Standards	538-6329	Mike Allred	Bear River Southeastern Colorado	538-6316
Theron Miller	NPS Projects Lake Assessment	538-6065	David Wham	Jordan River GSL Desert/Columbia	538-6052
Rand Fisher	NPS Program Coordinator	538-6065	Jim Harris	Sevier River Cedar/Beaver	538-6825
Tom Toole	305(b) Program 303(d) Program Stream Assessment	538-6859	Carl Adams	Uinta West Colorado	538-9215
Mark Stanger	GIS Coordinator	538-9217	John Whitehead	Weber River	538-6053
			Harry Judd	Lower Colorado West Colorado	538-6057

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